CHAPTER 1
INTRODUCTION

1-1. Purpose. This manual provides an inventory of the dredging equipment and disposal techniques used in the United States and provides guidance for activities associated with new work and maintenance projects. This manual also presents engineering and design guidance for use on both new work and maintenance dredging projects. The guidance is primarily for projects that have been authorized and are in the preliminary design stages. However, much of the information is equally applicable to the preliminary engineering and design required during the authorization phase of dredging projects. This manual further provides guidance on the evaluation and selection of equipment and evaluation of disposal alternatives.

1-2. Applicability. This EM is applicable to all field operating activities concerned with administering the Corps' dredging program.

1-3. References. The references listed below provide practical guidance to Corps personnel concerned with dredging and dredged material disposal.

a. ER 1110-2-1300, Government Estimates and Hired Labor Estimates for Dredging.

b. ER 1110-2-1404, Deep Draft Navigation Project Design.

c. EM 1110-2-1906, Laboratory Soils Testing.

d. EM 1110-2-1907, Soil Sampling.

e. EM 1125-2-312, Manual of Instructions for Hopper Dredge Operations and Standard Reporting Procedures.

f. WES TR D-77-9, Design and Construction of Retaining Dikes for Containment of Dredged Material.

g. WES TR DS-78-1, Aquatic Dredged Material Disposal Impacts.

h. WES TR DS-78-4, Water Quality Impacts of Aquatic Dredge Material Disposal (Laboratory Investigations).

i. WES TR DS-78-6, Evaluation of Dredged Material Pollution Potential.

j. WES TR DS-78-10, Guidelines for Designing, Operating, and Managing Dredged Material Containment Areas.

k. WES TR DS-78-11, Guidelines for Dewatering/Densifying Confined Dredged Material.

l. WES TR DS-78-12, Guidelines for Dredged Material Disposal Area Reuse Management.

m. WES TR DS-78-13, Prediction and Control of Dredged Material Dispersion Around Dredging and Open-Water Pipeline Disposal Operations.

n. WES TR DS-78-16, Wetland Habitat Development with Dredged Material: Engineering and Plant Propagation.

o. WES TR DS-78-17, Upland Habitat Development with Dredged Material: Engineering and Plant Propagation.

p. WES TR DS-78-18, Development and Management of Avian Habitat on Dredged Material Islands.

q. WES TR DS-78-21, Guidance for Land Improvement Using Dredged Material.

The WES Technical Reports referenced above are available from the Technical Information Center, U. S. Army Engineer Waterways Experiment Station, P. O. Box 631, Vicksburg, MS 39180.

1-4. Bibliography. Bibliographic items are indicated throughout the manual by numbers (item 1, 2, etc.) that correspond to similarly numbered items in Appendix A. They are available for loan by request to the Technical Information Center Library, U. S. Army Engineer Waterways Experiment Station, P. O. Box 631, Vicksburg, MS 39180.

1-5. Background. The Corps of Engineers has been concerned with the development and maintenance of navigable waterways in the United States ever since Congressional authorization was received in 1824 to remove sandbars and snags from major navigable rivers. The Corp's dredging program involves the planning, design, construction, operation, and maintenance of waterway projects to meet navigation needs. The Corps' responsibility includes developing and maintaining the Nation's waterways and harbors, as well as maintaining a minimum dredging fleet to meet emergency, national defense, and national interest dredging requirements. The importance of the Corp's dredging program to the economic growth of the country is suggested by the fact that the total waterborne commerce of the United States continued its record-breaking advance during the 1970's. The viability of the economy of the United States is clearly dependent upon maintenance of the waterways, ports, and harbors for navigation. The Corp's annual dredging workload is approximately 287 million cu yd of material, including both maintenance and new work. The Corps accomplishes the majority (70 percent in FY 81) of its annual dredging workload by contracting privately owned equipment under competitive bidding procedures; it performs the remaining work using hired labor to operate Corps-owned dredges (item 5). An overview of the Corps' dredging program is shown in figure l-l.

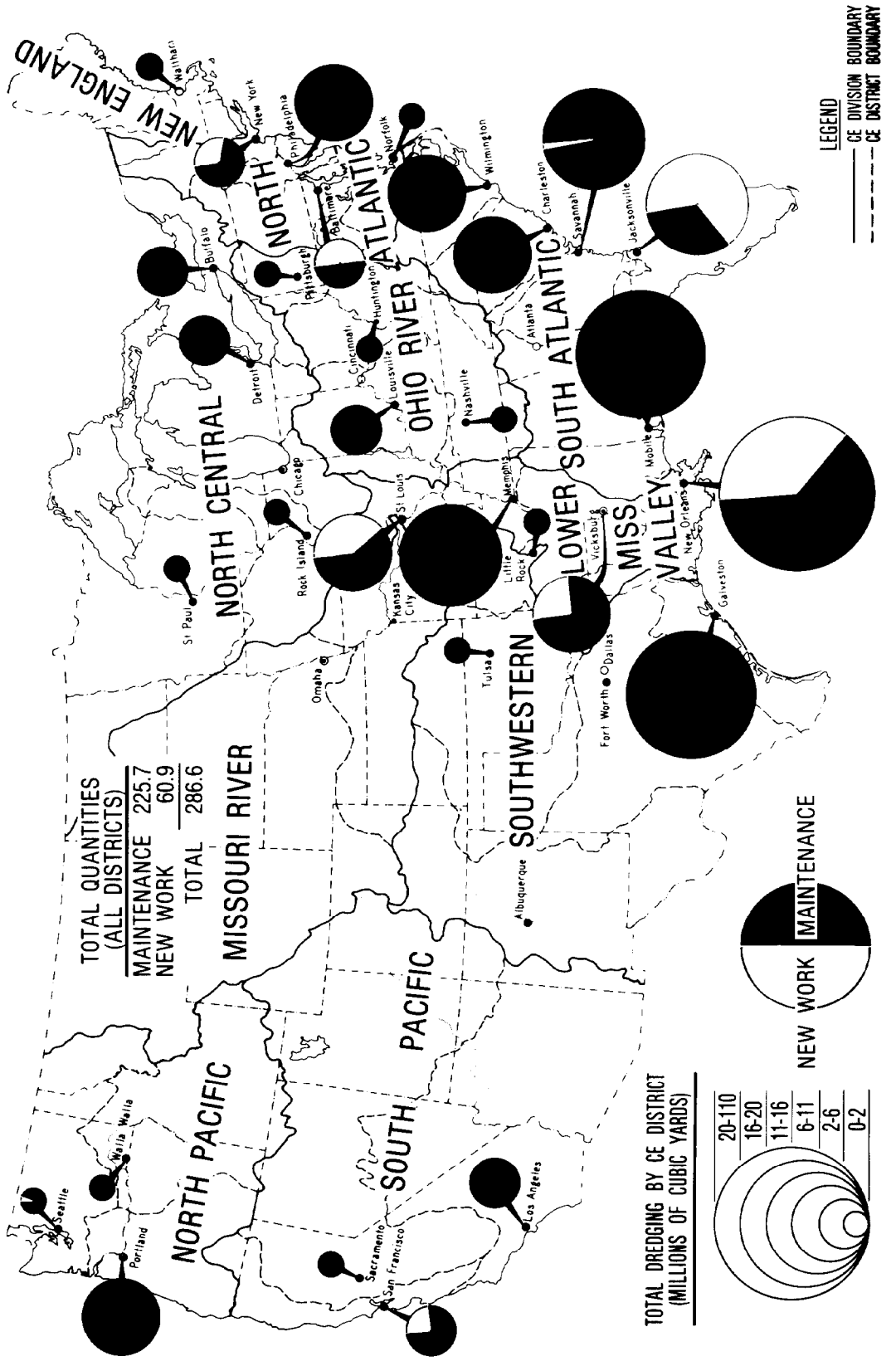

Figure 1-1. Corps' dredging program (FY 81).

1-6. Considerations Associated with Dredging and Dredged Material Disposal. Some considerations associated with dredging and dredged material disposal are as follows:

a. Selection of proper dredge plant for a given project.

b. Determining whether or not there will be dredging of contaminated material.

c. Adequate disposal facilities.

d. Long-term planning for maintenance dredging projects.

e. Characterization of sediments to be dredged to support an engineering design of confined disposal areas.

f. Determining the levels of suspended solids from disposal areas and dredge operations.

g. Disposal of contaminated sediments.

h. Disposal in remote areas.

i. Control of dredging operation to ensure environmental protection.

j. Containment area management for maximizing storage capacity.